No. 670,888. Patented Mar. 26, 1901.

G. E. RIDGWAY.

SELF FLUSHING TIME VALVE.

(Application filed Jan. 2, 1901.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

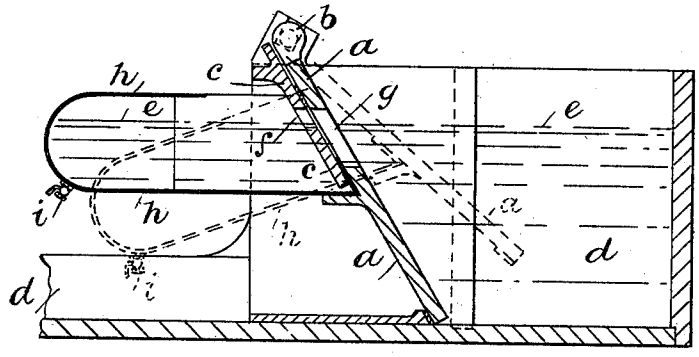
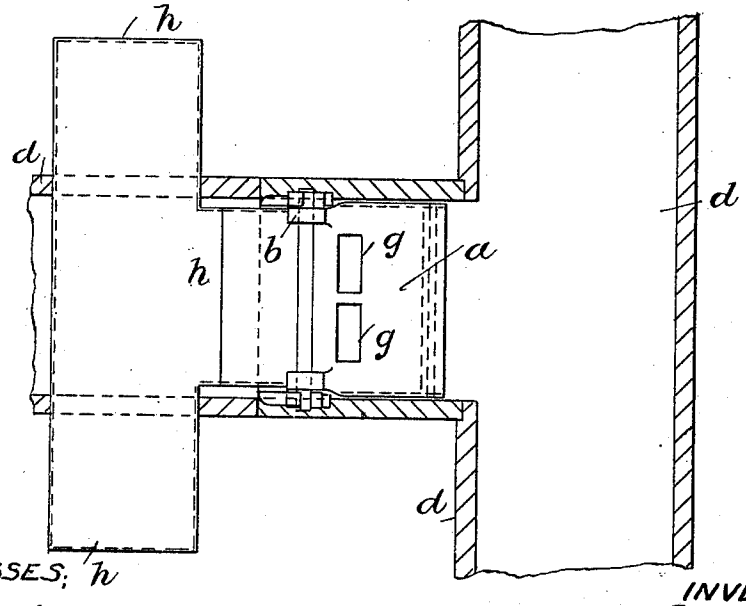


FIG. 2.



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FIG. 3.

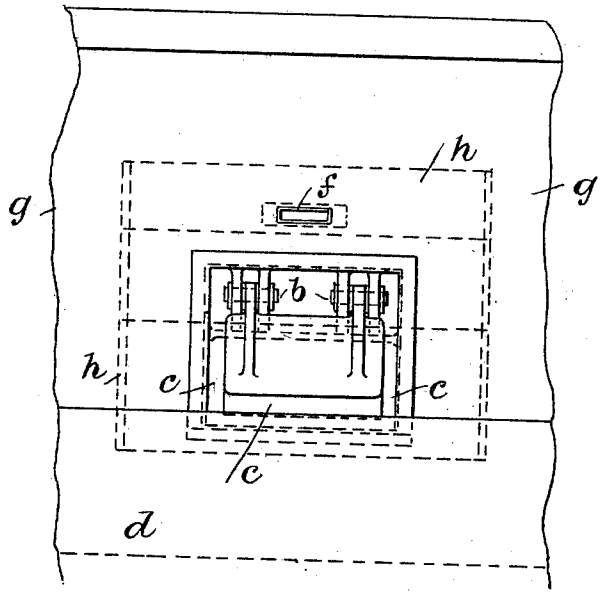
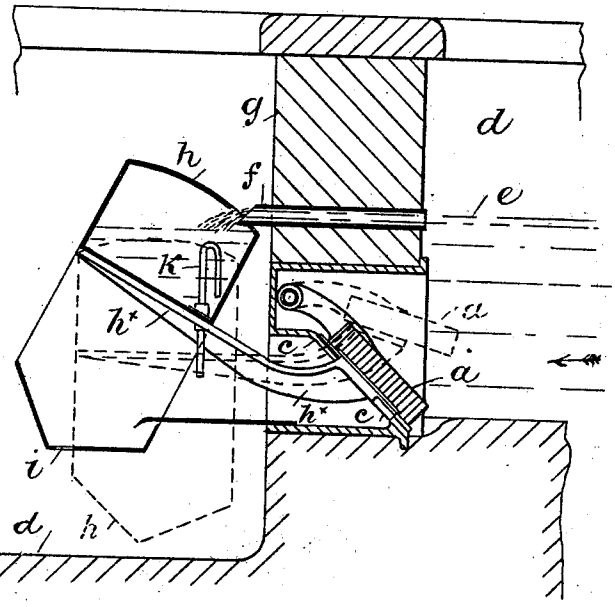


FIG. 4.



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UNITED STATES PATENT OFFICE.

GEORGE EDWARD RIDGWAY, OF ASHLEY, ENGLAND.

SELF-FLUSHING TIME-VALVE.

SPECIFICATION forming part of Letters Patent No. 670,888, dated March 26, 1901.

Application filed January 2, 1901. Serial No. 41,857. (No model.)

To all whom it may concern:

Be it known that I, GEORGE EDWARD RIDGWAY, a subject of the Queen of Great Britain, residing at Brentwood, Ashley, in the county of Chester, England, have invented a new and useful Improved Self-Flushing Time-Valve Applicable to Sewage Distribution and other Like Purposes, of which the following is a specification.

This invention is designed principally for the purpose of receiving and storing the effluent as it flows from the first filter-bed and periodically, as soon as the liquid has accumulated to a given level, discharging the same with a "flush" onto and over the surface of a second contact-bed in the automatic treatment of sewage; but it is also applicable to the automatic periodical distribution of other fluids where a "flushing" action is desirable.

The manner in which my said invention is to be performed or carried into practical effect will be readily understood on reference to the two sheets of drawings hereunto annexed and the following explanation thereof.

On Sheet 1 of the drawings Figure 1 is a vertical section, and Fig. 2 a plan view, of my improved self-flushing time-valve; and on Sheet 2 of the drawings Fig. 3 is a front elevation, and Fig. 4 a vertical section, of a modification of the same.

Referring to Figs. 1 and 2, Sheet 1, of the drawings, my improved automatic valve consists of a door or flap *a*, hinged at the top *b* and closing downward, applied to a sloping seating *c*, fixed in a distributing-channel *d*, leading from one filter-bed to the other, and when the said valve *a* is closed, as shown at Fig. 1, the liquid entering by the channel *d* accumulates behind the said valve *a* until it reaches the level indicated by the dotted line *e* on Fig. 1, which is that required to give the said liquid the necessary amount of flush when released. Just above this level *e* I make an opening *f* through the seating *c*, and also a similar (but larger) opening or openings *g* through the valve *a* itself, so that when the liquid exceeds this level it commences to flow through these openings *f* and *g* into a chamber *h*, fixed to the back of the valve *a*. As soon as this chamber *h* has received a sufficient weight of water or liquid to overcome that pressing against the valve *a* (which will be regulated by the size of the opening *f*) its weight overbalances the said valve, which it then opens, as shown by dotted lines on Fig. 1, and allows the imprisoned fluid to escape with a flushing action, the chamber *h*, attached to the valve, remaining full, and thus keeping the valve open. At the lower part of this chamber when in this position I place a small escape-tap *i*, which can be adjusted by hand, (or I make a hole of a certain size,) so that at the end of a certain fixed period the chamber *h* shall have been emptied sufficiently to allow the valve *a* to close by its own weight ready for the accumulation of a fresh "head" of the fluid behind it, and so on, alternately opening and closing the valve *a* and discharging the fluid with a flush automatically at certain definite periods regulated by the accumulation of fluid behind the valve.

Referring to Figs. 3 and 4, Sheet 2, of the drawings, which represent a modification of the above, the same letters of reference are used to denote similar parts, *a* being the flap or valve, hinged at *b*, *c* the sloping seating, and *d* the distributing-channel, and the line *e* is the level at which the fluid commences to flow into the chamber *h*, which is fixed to the valve by the curved arm $h^{\times}$. The chamber *h* is in this modification of a "saddle" or other convenient form, its two ends being carried below the valve *a*, and the opening *f* at the fluid-level instead of being made through the valve is made through the retaining-wall *g*. (See Fig. 4.) In all cases, however, it should be noted that the outlet from the tank to the chamber is substantially at the highest level of liquid in the tank, so that only the upper and clearer layer of liquid is admitted to the chamber, thereby preventing the access of solid matters contained in sewage or the like, thus avoiding the clogging of the chamber and its outlet.

A discharge-opening may be made in the bottom of the chamber at *i*, (instead of a valve,) and the upper part of the chamber is provided with a siphon *k* (or an open hole) of such a diameter as to allow of the escape of the fluid, so that the valve can be timed to remain open for a given period.

I claim as my invention—

1. A self-flushing time-valve, comprising a tank to be emptied or flushed, a valve and a

seat therefor in the lower part of the tank, a chamber outside the tank and secured to the valve, said chamber in its lowermost position being above the flushing flow from the tank, an outlet from the tank to the chamber located at substantially the highest level reached by the liquid in the tank, whereby only the upper and clearer layer of liquid is admitted to the chamber, substantially as described.

2. A self-flushing time-valve, comprising a tank to be emptied or flushed, a valve and a seat therefor in the lower part of the tank, a chamber outside the tank and secured to the valve, said chamber on its lowermost position being above the flushing flow from the tank, an outlet to the tank above the chamber, and a siphon-outlet to the chamber, as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE EDWARD RIDGWAY.

Witnesses:

GEORGE DAVIES,

JNO. HUGHES.